



INSTITUTE FOR RESEARCH IN  
**ELECTRONICS**  
& **APPLIED PHYSICS**

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Document Control Desk  
United States Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

SUBJECT: UNIVERSITY OF MARYLAND - REQUEST FOR ADDITIONAL  
INFORMATION RE: FOR THE RENEWAL OF FACILITY OPERATING LICENSE NO. R-  
70 THE MARYLAND UNIVERSITY TRAINING REACTOR DOCKET NO. 50-166, ME1592

Enclosed please find the responses to RAIs #13-28, 30, 32-39, 41-43, 45-57, and 62-66 dated July 28, 2016 for the University of Maryland Training Reactor (MUTR).

In addition to the RAIs that we have answered, additional definitions were added or enhanced as noted in the enclosure. We have removed the numbering and capitalized definitions throughout the technical specifications to enhance readability.

I declare under penalty of perjury that the foregoing response is true and correct.

Sincerely,

Timothy W. Koeth

AD20  
NRR

13. Revise proposed TS 3.1, Specification 1 to replace the term "cold critical condition" with a defined term, or justify why change is necessary.

*We have updated TS 3.1 Specification 1 to replace the term "cold critical condition" with the defined term "REFERENCE CORE CONDITION". It now reads:*

*The EXCESS REACTIVITY relative to the REFERENCE CORE CONDITION, with or without experiments in place shall not be greater than \$3.50.*

14. MUTR TS 3.1, Specification 3, item b, states "No fuel should be inserted or removed from the core unless the reactor is subcritical by more than the worth of the most reactive fuel element."

Provide a reference to the analyses and/or evaluation as required by 10 CFR 50.36 and submit pursuant to 10 CFR 50.34 which establishes subcriticality criteria for this specification related to fuel bundle insertion and removal at MUTR, or justify why the proposed specification meets the requirements of 10 CFR 50.36.

*During a site visit on Oct. 28, 2016 we have added \$0.50. The specification now reads:*

*No fuel shall be inserted or removed from the core unless the reactor is subcritical by more than the worth of the most reactive FOUR ELEMENT FUEL BUNDLE plus \$0.50.*

15. MUTR proposed TS 3.1, Specification 3, item c, states "No control rods shall be removed from the core unless a minimum of four fuel bundles are removed from the core." While NUREG 1537, Part 1, Chapter 14, Appendix 14.1, Section 3.1, item (4), states "If control rods need to be removed from the reactor core for inspection, an LCO should state the negative reactivity necessary in the core before a control rod can be remove." It is not clear if the four fuel bundles have a reactivity greater than the control rod.

Provide a reference to the analyses and/or evaluation as required by 10 CFR 50.36 and submit pursuant to 10 CFR 50.34 which demonstrates that the removal of a minimum of four fuel bundles maintains the minimum shutdown margin per MUTR proposed TS 3.1, Specification 2 with the most reactive control rod withdrawn, or justify why the proposed specification meets the requirements of 10 CFR 50.36

*During a site visit on Oct. 28, 2016 we have updated this specification to include a single control rod being inspected at any one time. The specification now reads:*

*No control rod shall be removed from the core unless a minimum of four fuel bundles are removed from the core, having reactivity greater than the control rod.*

- 16 a. Revise proposed TS 3.1, Specification 4 using consistent terminology to make clear the condition of operation of the reactor with fuel damage or justify why no change is necessary. For example, "No operation with damaged fuel (defined as a clad defect that results in fission product release into the reactor coolant) except to locate such fuel." to "The reactor shall not be operated with damaged fuel (defined as a clad defect that results in fission product release into the reactor coolant) except to locate such fuel."

*We have revised our proposed Specification to use consistent terminology. The specification now reads:*

*The reactor shall not be operated with damaged fuel (defined as a cladding defect that results in fission product release into the reactor coolant) except to locate such fuel. Fuel shall be considered damaged if:*

- 16 b. Revise proposed TS 3.1 to include criteria for damaged fuel, or justify why no change is necessary.

*We have updated TS 3.1 to include the ANSI/ANS -15.1-2007 (R2013) criteria for damaged fuel. The specification now reads:*

*(a) In measuring the transverse bend, the bend exceeds 0.125 inch over the length of the cladding, or*

*(b) In measuring the elongation, its length exceeds its original length by 0.125 inch, or*

*(c) A cladding defect exists as indicated by release of fission products, or*

*(d) A visual inspection reveals bulges, gross pitting or corrosion.*

- 17 a. Provide a companion surveillance specification in MUTR proposed TS Section 4, addressing MUTR proposed TS 3.1, Specification 5, or justify why no change is necessary. The reactivity coefficients appear to have an exact value. Consider describing them as a nominal value for operational flexibility

*During a site visit on Oct. 28, 2016 we have removed the reactivity coefficients from the Technical Specifications.*

- 17 b. Revise proposed TS 3.1, Specification 5 using consistent terminology defined in the MUTR TSs to clearly identify that the reactivity values shall be the listed values, or justify why no change is necessary.

*The reactivity coefficients have been removed.*

18. Revise proposed TS 3.2, Specification 1 to include the time interval from the initiation of a scram signal to the control rods fully inserted position, or justify why no change is necessary. For example, "The drop time of each of the three standard control ..." to "The drop time from the initiation of scam signal of each of the three standard control ..."

*We have revised TS 3.2 Specification 1 to include the time interval from the initiation of a scram signal to the control rods fully inserted position. It now reads:*

*The drop time from the initiation of scram signal of each of the three standard control rods from the fully withdrawn position to the fully inserted position shall not exceed one second.*

19. Revised proposed TS 3.2, Specification 6 using consistent terminology defined in the MUTR TSs to clearly identify a requirement or justify why no change is necessary. For example, "A minimum of one reactor power channel, calibrated for reactor thermal power, must be attached to a ..." to "A minimum of one reactor power channel, calibrated for reactor thermal power, shall be attached to a...."

*We have revised TS 3.2 Specification 6 to use consistent terminology. It now reads:*

*A minimum of one reactor power channel, calibrated for reactor thermal power, shall be attached to a recording device sufficient for auditing of reactor operation history.*

20. MUTR proposed TS 3.2, Table 3.1 "Reactor Safety Channels: Scram Channels," provides seven scram channels and their associated setpoints. While the setpoints of the scram channels are provided, further clarification is needed.

*We have updated this table to reflect our conversation on October 28, 2016.*

Scram Channel	Minimum Required Operable	Scram Setpoint
Reactor Power Level	2	Not to exceed 120%
Fuel Element Temperature	1	Not to exceed 175°C
Power Supply for Reactor Power Levels	2	<90%
Manual Scram	1	N/A
Console Electrical Supply	1	Loss of electrical power to the control console
Rate of Power Change - Period	1	Not less than 5 seconds
Radiation Area Monitors	1	<50 mr/hr (bridge monitor) <10 mr/hr (exhaust monitor)
Pool Water Temperature	1	< 90°C, manual scram

Table 3.1: Reactor Safety Channels: Scram Channels

- 21 a. Revise proposed TS 3.3 Specifications 2 and 3 to delete the surveillance interval, or justify no change is necessary.

*We have revised TS 3.3 Specifications 2 and 3 to delete the surveillance interval. The specifications now read:*

*2. Conductivity of the pool water shall be no higher than  $5 \times 10^{-6}$  mhos/cm.*

*3. The concentrations of radionuclides in the bulk pool water shall be no higher than the values presented for water in 10 CFR Appendix B to Part 20 Table 3.*

- 21 b. Revise proposed TS 3.3, Specification 3 to specify fission product activities detection. For example, "The concentration of radionuclides in the bulk pool water shall be no higher than the values presented for water in 10 CFR Part 20, Appendix B"

*We have revised TS 3.3 Specification 3 to specify fission product activities detection. The specification now reads:*

*The concentrations of radionuclides in the bulk pool water shall be no higher than the values presented for water in 10 CFR Appendix B to Part 20 Table 3.*

22. Revise proposed TS 3.4, Specification 1 to include ventilation system, or justify no change is necessary.

*During a site visit on Oct. 28, 2016, we have revised TS 3.4 specification 1 to include the ventilation system. The specification now reads:*

*CONFINEMENT shall be considered established when the doors leading from the reactor bay area into the balcony area on the top door, and the reception area as well as the building exterior are secured and ventilation system is off with louvers closed.*

- 23 a. Revised proposed TS 3.4, Specification 2 using TS consistent terminology defined in MUTR TSs, or justify no change is necessary.

*We have revised proposed TS 3.4 Specification 2 to include consistent terminology. The specification now reads:*

*CONFINEMENT shall be established whenever the reactor is not secured or radioactive material with significant potential for airborne release is being handled, with the exception of the time that persons are physically entering or leaving the CONFINEMENT area.*

- 23 b. Provide a specification that address the need for confinement when the reactor is secured but a potential for release of radioactive material from sources external to the reactor core are present, or justify why the current requirements for confinement is adequate. For example, "Handing of radioactive materials with the potential for airborne release."

*We have addressed the need for confinement when the reactor is secured but a potential for release of radioactive material is present in TS 3.4 Specification 2. The specification now reads:*

*CONFINEMENT shall be established whenever the reactor is not secured or radioactive material with significant potential for airborne release is being handled, with the exception of the time that persons are physically entering or leaving the CONFINEMENT area.*

24. Revise proposed TS 3.5, Specification 1 to clarify as to what "shall not exchange air with other occupied spaces in the building means (i.e., reactor building ventilation system or other), or justify why no change is necessary.

*During a site visit on Oct. 28, 2016, we have removed TS 3.5 and added Ventilation to TS 3.4. This specification has been removed.*

25. MUTR proposed TS 3.6.1, "Radiation Monitoring System," Specification 1 states "The reactor shall not be operated unless a minimum of one of the two radiation area monitor channels listed in Table 3.5 are operable." In accordance with 10 CFR 50.36, TSs are to be derived from the analyses and evaluation included in the SAR and submitted pursuant to 10 CFR 50.34.

Guidance provided in NUREG-1537, Part 1, Chapter 14, Appendix 14.1, Section 3.7.1, item (3), states, in part, that "Alarm and automatic action setpoints should be specified to ensure that personnel exposures and potential doses remain well below limits of 10 CFR Part 20."

Revise proposed TS 3.6.1, Specification 1 to clarify either monitor is capable of assuring that personnel exposures and potential doses remain below occupational and public exposure limits of 10 CFR Part 20. Provide analysis/evaluation that demonstrates that in the event that if only one operable radiation monitor (as permitted by TS 3.6.1 Specification 1, how it will be assured that personnel exposures and potential doses remain below occupational and public exposure limits of 10 CFR Part 20 and support timely notification of ROs for the need to implement protective action for events such as Nitrogen 16 (N-16) diffuser failures, experiment failures, loss of coolant, or other accidents, or justify why no change is necessary.

*During a site visit on October 28, 2016, we have revised TS 3.5.1 specification 1 to preclude reactor operation without the bridge monitor. The specification now reads:*

*The reactor shall not be operated unless the bridge monitor in Table 3.5 is OPERABLE.*

26. Revise proposed TS 3.6.1, Specification 2 using consistent terminology defined in the MUTR TSs (e.g., shall) to clearly identify, as a requirement. For example, "...the intent of specification 3.6.1 shall be satisfied if ...," or justify why no change is necessary.

*We have revised TS 3.5.1 specification 2 to use consistent terminology. The specification now reads:*

*For a period of time not to exceed 48 hours for maintenance or calibration to the radiation monitor channels, the intent of specification 3.6.1 shall be satisfied if they are replaced with portable gamma sensitive instruments having their own alarms or which shall be observable by the REACTOR OPERATOR.*

27. Revise proposed TS 3.6.1, Specification 4 to clarify that the environmental monitor(s) are at the high effluence release point to conform to 10 CFR Part 20 requirements, or justify why no change is necessary. For example, "The campus radiation safety organization shall maintain environmental monitors at the greatest point of release."

*We have revised TS 3.5.1 specification 4 to clarify that the environmental monitors are at the high effluence release points. The specification now reads:*

*The campus radiation safety organization shall maintain environmental monitors at the greatest points of release.*

28. MUTR proposed TS 3.7, "Limitations on Experiments," states, in part, that "The reactor shall not be operated unless the following conditions governing experiments exist." Clarification or additional information is needed on those following conditions. The regulations in 10 CFR 50.36 provides the requirement for TSs for production and utilization facilities, including research reactors. The regulations in 10 CFR 50.36(c)(ii) states that a TS limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of following criteria (10 CFR 50.36(c)(ii) (A)-(D)). Experiments require limiting conditions for operation which provide the lowest functional capability or performance levels of equipment (in this case, the experiment) required for safe operation of the facility. These conditions provide assurance that experiment failures are rare and if they do occur that safety of the facility is not compromised. Therefore, if an experiment does fail, inspection of reactor structures and components shall be performed in order to verify that the failure did not cause damage to the facility and appropriate corrective actions shall be taken to prevent recurrence. The necessity for such actions is recognized and appears in the Bases 3 and 4 of MUTR TS 3.7. However, it is not appropriate to include "shall" statements (a requirement) in the bases.

Revise proposed TS 3.7, Specification 3 and 4 to capture the requirements (shall statements) previously included in TS 3.7, Bases 3 and 4, respectively. For example, "if an experiment fails, inspection of reactor structures and components shall be performed in order to verify that the failure did not cause damage. If damage is found, appropriate corrective actions shall be taken."

Also, proposed TS 3.7, Specification 3 describes requirements to double encapsulate of certain materials. It is not clear if double encapsulation provides protection to the reactor in the event of an explosion from potential explosive experiments. Proposed TS 3.7, Specification 4 does not include potential explosive materials.

Revise either proposed TS 3.7, Specification 3 or proposed TS 3.7, Specification 4 to ensure potential explosive materials are sufficiently encapsulated, or justify why no change is necessary. For example:

Specification 3 – "Experiments containing materials corrosive to reactor components, compounds highly reactive with water, potentially explosive materials, and liquid fissionable materials shall be doubly encapsulated." To "Experiments containing materials corrosive to reactor components, compounds highly reactive with water and liquid fissionable materials shall be doubly encapsulated."

Specification 4 – "Explosive materials ..." to "Explosive materials or potential explosive materials...."

*We have revised TS 3.6 specification 3 and 4 to read:*

3. Experiments containing materials corrosive to reactor components, compounds highly reactive with water, and liquid fissionable materials shall be doubly encapsulated. In the event of a failure, the potentially impacted reactor components shall be inspected for damage. The results of the inspection and any corrective action taken shall be reviewed by the Director or their designated alternate and determined to be satisfactory before operation of the reactor is resumed.

4. Explosive materials or potential explosive materials in quantities greater than 25 mg TNT or its equivalent shall not be irradiated in the reactor or EXPERIMENTAL FACILITIES. Explosive materials in quantities equal to or less than 25 mg TNT or its equivalent may be irradiated provided the pressure produced upon detonation of the explosive has been calculated and/or experimentally demonstrated to be less than the failure pressure of the container. The failure pressure of the container is one half of the design pressure. Total explosive material inventory in the reactor facility may not exceed 100 mg TNT or its equivalent. In the event of a failure, the potentially impacted reactor components shall be inspected for damage. The results of the inspection and any corrective action taken shall be reviewed by the Director or their designated alternate and determined to be satisfactory before operation of the reactor is resumed.

30. Revise proposed TS 4.1, Specification 4 to remove the redundant surveillance, or justify why no change is necessary.

*We have revised TS 4.1 Specification 4 to remove the duplicate surveillance.*

32. Revise proposed TS 4.1, Specification 6 to include a surveillance requirement describing the determination/measurement of fuel element burnup that ensures that fuel will be removed from service prior to exceeding 50 percent burnup of U-235 in the UZrH fuel matrix, or justify why no change is necessary.

*During a site visit on Oct. 28, 2016 we have updated TS 4.1 specification 5 to include a surveillance for the determination of fuel element burnup. The specification now reads:*

*Burnup shall be determined annually.*

33. Revise proposed TS 4.2, Specification 4 referencing the tables for scram channels in TS 3.2, Tables 3.1 and 3.2), or justify why no change is necessary.

Also, proposed TS 4.2, Specification 4 describe "safety rod" but "safety rod" is not define in MUTR proposed TS Definition.

Revise proposed TS 4.2, Specification 4 using the defined term, such as "Rod-Control" defined in TS 1.33, or justify why no change is necessary.

*We have revised TS 4.2 specification 4 to reference Tables 3.1 and 3.2 and use the defined term "CONTROL ROD". The specification now reads:*

*All scram channels listed in Table 3.1 shall have a CHANNEL TEST, including trip actions with CONTROL ROD release and specified interlocks as listed in Table 3.2 performed after each SECURED SHUTDOWN, before the first operation of the day, or prior to any operation scheduled to last more than 24 hours, or quarterly, with intervals*

*not to exceed 4 months. Scram channels and interlocks shall be calibrated annually, at intervals not to exceed 15 months.*

34. Revise proposed TS 4.2, Specification 5 using a defined term, such as surveillance requirement (per 10 CFR 50.36(c)(3), or channel test or channel calibration (per MUTR proposed TS Definitions) or justify why the current specification is acceptable.

*We have revised TS 4.2 specification to use the define term "CHANNEL TEST". The specification now reads:*

*CHANNEL TESTS shall be performed on all affected safety and control systems after any maintenance is performed.*

35. Revise proposed TS 4.5 to provide the active response of the specific ventilation system components (e.g., automatic closure of reactor building dampers and the automatic trip of reactor building fans on high radiation, as applicable) that demonstrate the system is operable, or justify why no change is necessary.

*During a site visit on Oct. 28, 2016, we have combined sections on Confinement and Ventilation Systems. TS 4.4 now reads:*

*The ability to close the louvers of the ventilation system shall be verified before the first reactor operation after a SECURED SHUTDOWN.*

36. Revise proposed TS 4.6.2, Objective to correctly state the intended objective.

*The objective has been revised to contain proper grammar. The objective now reads:*

*The objective of these specifications is to ensure that releases to the environment are kept below allowable limits.*

37. Revise proposed TS 4.7, Specification 2 to include the reference to proposed TS 6.5, or justify why no change is necessary.

*We have revised this specification to include the reference to TS 6.5, it now reads:*

*An EXPERIMENT shall not be installed in the reactor or its irradiation facilities unless a safety analysis has been performed and reviewed for compliance with Section 3.7 by the Reactor Safety Committee or Facility Director, in full accord with Sections 6.1.2, 6.2.1, and 6.5 of these Technical Specifications and the procedures which are established for this purpose.*

38. Revise proposed TS 5.1, Specification 1 to include design features (DFs) such as or the volume of the reactor room and any other values related to the site or facility description that are used as input data to analyses and evaluations required for facility licensing, or justify why the current specification is acceptable.

*We have updated design features to include the volume of the reactor room. The specification now reads:*

*The reactor shall be housed in a closed room, with free air volume of 1700 m<sup>3</sup>, designed to restrict leakage. The closed room does not include the west balcony area.*

39. Provide a specification describing "the licensed area" or justify why no change is necessary.

*We have updated TS 5.1 specification 2 to describe the licensed area. The specification now reads:*

*The licensed reactor site boundary shall consist of the outer walls of the reactor building and the area enclosed by the loading dock fence.*

41. Revise proposed TS 5.3.1, Specification 2 to specify a ZrHx ratio for the SL, or justify why no change is necessary. For example, "1.5 -1.8" to "1.5 – 1.7."

*We have revised TS 5.3.1 specification 2 to include the ZrHx ratio. The specification now reads:*

*Zirconium hydride atom ratio: nominal 1.5 - 1.7 hydrogen-to-zirconium, ZrHx.*

42. Revise proposed TS 5.4, Specification 1, to include all fissile materials (e.g., fuel, fueled experiments, and fuel devices that are not in the reactor) in the calculation of the storage location keff, or justify why no change is necessary.

*We have revised TS 5.4 specification 1 to include all fissile materials. The specification now reads:*

*All FUEL ELEMENTS and FUELED DEVICES shall be stored either in a geometrical array where the k-effective is less than 0.8 for all conditions of moderation and reflection or stored in an approved fuel shipping container.*

43. Revise proposed TS 5.4, Specification 3 to use terminology consistent with the term defined in the MUTR TS Definitions or justify why no change is necessary. For example, "...that area must be equipped with monitoring devices..." to "that area shall be equipped with monitoring devices...."

*We have updated TS 5.4 specification 3 to use consistent terminology. The specification now reads:*

*When fuel is in storage in any area other than the grid plate, that area shall be equipped with monitoring devices that both measure and record the radiation levels and temperature of the region surrounding the fuel.*

45. Revise proposed TS 6.1.2 to be consistent with 10 CFR 55.4 for the responsibility of an SRO, or justify why no change is necessary.

*We have updated the definition to be consist with the ANSI/ANS-15.1-2007 (R2013). The definition now reads:*

*A senior reactor operator is an individual who is licensed by the NRC to direct the activities of reactor operators. Such an individual is also a reactor operator.*

46. Revise proposed TS 6.1.2 or TS 6.1.2, Figures 6.1 and 6.2, to be consistent with the official name of the college of engineering, or justify why no change is necessary.

*We have revised our figures to be consistent with the official name of the college of engineering.*

47. Revise proposed TS 6.1.2 to specify who is responsible for adhering to all requirements of the operating license, or reactor facility operation and TSSs, or justify why no change is necessary. For example:

- a. Level I position are responsible for adhering to all requirements of the operating license

*We have updated our responsibilities to be consistent with ANSI/ANS-15.1-2007 (R2013). Level 1 now reads:*

*Level 1: Dean, A. James Clark School of Engineering and Chair, Department of Materials Science & Engineering; Shall be responsible for MUTR facility license.*

- b. Level II position are responsible for reactor facility operation and shall report to Level I

*We have updated our responsibilities to be consistent with ANSI/ANS-15.1-2007 (R2013). Level 2 now reads:*

*Level 2: Director, MUTR: Shall be responsible for reactor facility operation, adherence to the regulations, facility license, the technical specifications, and shall report to Level 1.*

48. Revise proposed TS 6.1.3, item 3a to specify when a SRO is required to supervise a reactor startup following all initial startups after the reactor has been placed in a secured condition, or justify why no change is necessary. For example, "Initial startup and approach to power following new fuel loading or fuel Rearrangement" to "Initial startup and approach to power"

*We have updated TS 6.1.3 item 3a to be consistent with ANSI/ANS-15.1-2007 (R2013). The item now reads:*

*Initial startup and approach to power for a startup requiring a startup checklist*

49. Revise proposed TS 6.1.3, item 3d to include the criteria for a significant reduction in power, or justify why no change is necessary.

*During a site visit on Oct. 28, 2016, we have added criteria for a significant reduction in power. The item now reads:*

*Recovery from unplanned or UNSCHEDULED SHUTDOWN or unplanned significant power reduction (greater than 10%).*

50. Revise proposed TS 6.1.4.1 to:
- a. Use the terminology consistent with the MUTR TS Definitions to describe and clearly identify the selection and training criteria as a requirements (e.g., the selection and training shall be in accordance with...), or justify why no change is necessary.
  - b. Clarify the version (e.g., ANSI/ANS-15.4-2007) of the guidance for selecting and training of personnel, or justify why the current specification is acceptable. For example, "The selection, training, and requalification of operations personnel shall meet or exceed the requirements of American National Standard "Selection and Training of Personnel for Research Reactors," ANSI/ANS-15.4-1988 (R1999)."
  - c. Change "selection" to "selection training and requalification"
  - d. Change "is responsible" to "shall be responsible"
  - e. Change "his designated" to "the designated"

*We have adopted all these changes in TS 6.1.4.1. It now reads:*

*The selection, training, and requalification of operations personnel shall be in accordance with the following:*

*1. Responsibility: The Facility Director or their designated alternate shall be responsible for the selection, training, and requalification of the facility REACTOR OPERATORS and SENIOR REACTOR OPERATORS.*

*2. Selection: The selection of operations personnel shall be consistent with the standards related to selection in ANSI/ANS-15.4-2007.*

*3. Training Program: The Training Program shall be consistent with the standards related to training in ANSI/ANS-15.4-2007.*

*4. Requalification Program: The Requalification Program shall be the Requalification/Training Program for the Maryland University Training Reactor.*

51. Revise proposed TS 6.2.1.1, item 3 to provide a time criteria (such as semi-annual) for distributing the meeting minutes, or justify why no change is necessary.

*We have revised TS 6.2.1.1 item 3 to provide a time criterion. The item now reads:*

*Minutes of all meetings will be retained in a file and distributed to all RSC members within 3 months.*

52. Revise proposed TS 6.2.1.2, item 1 to be consistent with the language in 10 CFR 50.59, or justify why no change is necessary.

*We have revised proposed TS 6.2.1.2 item 1 to be consistent with the language in 10 CFR 50.59. The item now reads:*

*Review and evaluation of determinations of whether proposed changes to the facility, procedures, and tests or experiments shall be made under 10 CFR 50.59 or would require a change in Technical Specifications or license conditions;*

53. Revise proposed TS 6.2.1.2 to provide a time criteria (such as semi-annual) for the written report, or justify why no change is necessary.

*We have revised the proposed TS to include a time criterion of 3 months after the review has been completed. The item now reads:*

*A written report of the findings and recommendations of the RSC shall be submitted to Level 1 management, the Facility Director, and the RSC members within 3 months after the review has been completed.*

- 54a. Revise MUTR proposed TS 6.2.1.3, item 1 to use consistent terminology defined in TS Definitions, or justify why no change is necessary. For example, "An annual audit and review of the reactor operations shall be performed."

*We have updated the proposed TS 6.2.1.3 to use consistent terminology. The item now reads:*

*An annual audit of the reactor operations shall be performed by an individual or group familiar with research reactor operations. The audit function shall include selective (but comprehensive) examination of operating records, logs, and other documents. Discussion with cognizant personnel and observation of operations should be used also as appropriate. In no case shall the individual responsible for the area perform an audit in that area. They shall submit a report to the Facility Director and the Reactor Safety Committee.*

- 54b. Revise proposed TS 6.2.1.3, item 2 to specify the audit function, or justify why no change is necessary. For example, "The following shall be audited."

*We have updated proposed TS 6.2.1.3 item 2 to use consistent terminology. The item now reads:*

*The following shall be audited:*

55. Revise proposed TS 6.4 to identify the responsibility for the approval of MUTR written procedures and or justify why the no change is necessary. For example, "Written procedures, reviewed and approved by the Reactor Safety Committee, shall be in effect and followed for the following items prior to performance of the activity. The procedures shall be documented and distributed in a timely manner. The procedures shall be adequate to assure the safety of the reactor, but should not preclude the use of independent judgment and action should the situation require such."

*We have updated proposed TS 6.4 to identify the responsibility for the approval of MUTR written procedures. TS 6.4 now reads:*

*Written OPERATING procedures shall be prepared, reviewed, and approved before initiating any of the activities listed in this section. The procedures shall be reviewed and approved by the MUTR Director or a designated alternate, the Reactor Safety Committee, and shall be documented in a timely manner. The procedures shall be adequate to assure the safety of the reactor, but shall not preclude the use of independent judgment and action should the situation require such.*

56. Revise proposed TS 6.4 to provide a specific reference to ANSI/ANS 15.11-1993, or justify why no change is necessary.

*We have revised proposed TS 6.4 to contain the specific reference. It now reads: Implementation, maintenance, and modification to the Radiation Protection Plan. The Radiation Protection Plan shall include an ALARA plan as defined in ANSI/ANS-15.11-1993 (R2004);*

57. Explain the differences in between proposed TS 6.4, item 6 and TS 6.4, item 10 and revise proposed TS 6.4 to remove redundancy, or justify why no change is necessary.

*We have deleted item 10 to remove the redundancy.*

62. Revise proposed TS 6.6.2 to using terminology consistent with the MUTR proposed TS Definitions to describe and clearly identify, as a requirement, or justify why no change is necessary. For example, "... In the event of a reportable occurrence, as defined in Section 1.32 of these Technical Specifications, the following actions shall be taken:.."

*We have revised proposed TS 6.6.2 to use consistent terminology. The TS now reads:*

*In the event of a REPORTABLE OCCURRENCE, the following actions shall be taken:*

63. The regulations in 10 CFR 50.9 require that information provided to the Commission by a licensee shall be complete and accurate in all material respects. MUTR proposed TS 6.7.1, "Annual Operating Report," item 2 appears to contain a typographical error. The total generation is Mw-hr but appears to be written as Mw hr<sup>-1</sup> [megawatts per hour]. Revise proposed TS 6.7.1, item 2 to correct the typographical error (e.g., removal of the superscript), or justify why no change is necessary.

*We have updated TS 6.7.1 to use the proper units. The TS now reads:*

*A tabulation showing the energy generated in MW-hr for the year*

64. Revise proposed TS 6.7.2 to include a confirmation of the telephone call in writing, or justify why no change is necessary.

*We have revised proposed TS 6.7.2 to include confirmation of the telephone call in writing. It now reads:*

*Notification shall be made within 24 hours by telephone and confirmed in writing by fax or similar conveyance to the NRC Headquarters Operation Center, and followed by a written report that describes the circumstances of the event and sent within 14 days to*

*the U.S. Nuclear Regulatory Commission, Attn: Document Control Desk, of any of the following:*

65. Revise proposed TS MUTR TS 6.7.3 to only provide reports to the NRC Document Control Desk, or justify why the inclusion of Region I in current specification is necessary.

*We have revised proposed TS 6.7.3 to provide reports to the NRC Document Control Desk. It now reads:*

*A written report within 30 days to the U.S. Nuclear Regulatory Commission, Attn: Document Control Desk, of:*

*Also, to be consistent with ANSI/ANS-15.1-2007 (R2013) standards, we have adjusted the numbering to remove 6.7.3.*

66. Revise proposed TS 6.7.3, item 4 to include all Level 1 and 2 positions, or justify why no change is necessary. For example, the Dean Clark School of Engineering

*We have revised proposed TS 6.6.3 to include all Level 1 and Level 2 personnel. It now reads:*

*permanent changes in the facility organization involving Level 1 and Level 2 personnel;  
and*